

# GIARDIASIS

## DISEASE REPORTING

### ***In Washington***

DOH receives approximately 550 to 750 reports of giardiasis per year, for an average rate of 11.7/100,000 persons. On average, 1 death is reported to be associated with *Giardia* infection each year.

### ***Purpose of reporting and surveillance***

- To identify sources of transmission (e.g., a public water source) and to prevent further transmission from such sources.
- When the source of infection appears to pose a risk of only a few individuals (e.g., an animal or a private meal), to inform those individuals how they can reduce their risk of exposure.
- To identify cases that may be a source of infection for others (e.g., a food handler) and prevent further transmission.
- To better characterize the epidemiology of this organism.

### ***Reporting requirements***

- Health care providers: notifiable to Local Health Jurisdiction within 3 work days
- Hospitals: notifiable to Local Health Jurisdiction within 3 work days
- Laboratories: no requirements for reporting
- Local health jurisdictions: notifiable to DOH Communicable Disease Epidemiology within 7 days of case investigation completion or summary information required within 21 days

## CASE DEFINITION FOR SURVEILLANCE

### ***Clinical criteria for diagnosis***

An illness caused by the protozoan *Giardia lamblia* and characterized by diarrhea, abdominal cramps, bloating, weight loss, or malabsorption. Infected persons may be asymptomatic.

### ***Laboratory criteria for diagnosis***

- Demonstration of *G. lamblia* cysts in stool, or
- Demonstration of *G. lamblia* trophozoites in stool, duodenal fluid, or small-bowel biopsy, or

- Demonstration of *G. lamblia* antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunosorbent assay).

**Case definition**

- Probable: a clinically compatible case that is epidemiologically linked to a confirmed case.
  - Confirmed: a case that is laboratory confirmed.
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**A. DESCRIPTION****1. Identification**

A protozoan infection principally of the upper small intestine; while often asymptomatic, it may be associated with a variety of intestinal symptoms, such as chronic diarrhea, steatorrhea, abdominal cramps, bloating, frequent loose and pale greasy stools, fatigue and weight loss. Malabsorption of fats or of fat soluble vitamins may occur. There is usually no extraintestinal invasion, but reactive arthritis may occur and in severe giardiasis, damage to duodenal and jejunal mucosal cells may occur.

Diagnosis is traditionally made by identification of cysts or trophozoites in feces (to rule out the diagnosis at least three negative test results are needed) or of trophozoites in duodenal fluid (by aspiration or string test) or in mucosa obtained by small intestine biopsy; the latter may be more reliable when results of stool examination are questionable but is rarely necessary. Because *Giardia* infection is usually asymptomatic, the presence of *G. lamblia* (either in stool or duodenum) does not necessarily indicate that *Giardia* is the cause of illness. Tests using EIA or direct fluorescent antibody methods for detection of antigen in the stool are commercially available and are generally more sensitive than direct microscopy.

**2. Infectious Agent**

*Giardia lamblia* (*G. intestinalis*, *G. duodenalis*), a flagellate protozoan.

**3. Worldwide Occurrence**

Children are infected more frequently than adults. Prevalence is higher in areas of poor sanitation and in institutions with children not toilet trained, including day care centers. The prevalence of stool positivity in different areas may range between 1% and 30%, depending on the community and age group surveyed. Endemic infection in the US, UK and Mexico most commonly occurs in July-October among children less than 5 years of age and adults 25-39 years old. It is associated with drinking water from unfiltered surface water sources or shallow wells, swimming in bodies of freshwater and having a young family member in day care. Large community outbreaks have occurred from drinking treated but unfiltered water. Smaller outbreaks have resulted from contaminated food,

person to person transmission in day care centers and contaminated recreational waters including swimming and wading pools.

#### **4. Reservoir**

Humans; possibly beaver and other wild and domestic animals.

#### **5. Mode of Transmission**

Person to person transmission occurs by hand to mouth transfer of cysts from the feces of an infected individual, especially in institutions and day care centers; this is probably the principal mode of spread. Anal intercourse also facilitates transmission. Localized outbreaks may occur from ingestion of cysts in fecally contaminated drinking and recreational water and less often from fecally contaminated food. Concentrations of chlorine used in routine water treatment do not kill *Giardia* cysts, especially when the water is cold; unfiltered stream and lake waters open to contamination by human and animal feces are a source of infection.

#### **6. Incubation period**

Usually 3-25 days or longer; median 7-10 days.

#### **7. Period of communicability**

Entire period of infection, often months.

#### **8. Susceptibility and resistance**

Asymptomatic carrier rate is high; infection is frequently self-limited. Pathogenicity of *G. lamblia* for humans has been established by clinical studies. Persons with AIDS may have more serious and prolonged infection.

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## **B. METHODS OF CONTROL**

### **1. Preventive measures:**

- a. Educate families, personnel and inmates of institutions, and especially adult personnel of day care centers, in personal hygiene and the need for handwashing before handling food, before eating and after toilet use.
- b. Filter public water supplies that are exposed to human or animal fecal contamination.
- c. Protect public water supplies against contamination with human and animal feces.
- d. Dispose of feces in a sanitary manner.

- e. Boil emergency water supplies. Less reliable is chemical treatment with hypochlorite or iodine; use 0.1 to 0.2 ml (2 to 4 drops) of household bleach or 0.5 ml of 2% tincture of iodine per liter for 20 minutes (longer if the water is cold or turbid).

**2. Control of patient, contacts and the immediate environment:**

- a. Report to local health authority.
- b. Isolation: Enteric precautions.
- c. Concurrent disinfection: Of feces and articles soiled therewith. In communities with a modern and adequate sewage disposal system, feces can be discharged directly into sewers without preliminary disinfection. Terminal cleaning.
- d. Quarantine: None.
- e. Immunization of contacts: None.
- f. Investigation of contacts and source of infection: Microscopic examination of feces of household members and other suspected contacts, especially those who are symptomatic.
- g. Specific treatment: Metronidazole (Flagyl) or tinidazole (not licensed in the US) is the drug of choice. Quinacrine and albendazole are alternatives; furazolidone is available in pediatric suspension for young children and infants, paromomycin can be used during pregnancy. Drug resistance and relapses may occur with any drug.

**3. Epidemic measures**

Institute an epidemiologic investigation of clustered cases in an area or institution to determine source of infection and mode of transmission. A common vehicle, such as water, food or association with a day care center or recreational area, should be sought; institute applicable preventive or control measures. Control of person to person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces.

**4. International measures**

None.